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ABSTRACT

One important aspect of contemporary career counseling involves the potential for career counselors to help redress the serious and avoidable underrepresentation of minorities within the health professions. This study explored career-related perceptions of the minority seniors at two high schools for the health professions located in two disparate areas of Texas. Nonminority seniors (N=202) from an urban high school and from a magnet high school in the "valley" of Texas with a disproportionately higher Hispanic population were included in the study. The study instrument asked about current career goals; career choice changes; influences on career decisions; educational goals; career choice satisfaction; and perceived obstacles to career objectives. The failure to isolate noteworthy differences involving the school sites suggests that the two schools function somewhat similarly as regards recruitment of students and the impacts of curricula. The failure to find gender differences is encouraging, as the result suggests that equity goals have been realized to at least some degree. African-Americans, relative to Hispanics and especially to Asians, were most motivated by financial rewards. The African-American students' feelings of less confidence about being able to obtain career objectives may be realistic, especially as regards health careers. A substantial number (39%) change their career goals while they are enrolled. Students change objectives because of perceived economic benefits, academic demands, or other influences. (ABL)

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Aspirations of High School Seniors in Relation to Health Professions Career Objectives: A Career Development Counseling Perspective

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ABSTRACT

Efforts to attract minority students to health professions careers are important, because minority groups have greater needs for health care and tend to be less willing to seek needed care, partly in reaction to underrepresentation of minority groups within the health professions. The present study explored career-related perceptions of the minority seniors at two High School for the Health Professions located in disparate areas of Texas.

Although career counseling has roots dating back to at least Parsons' (1909) seminal book, Choosing a Vocation, modern career counseling reflects the paradigm shift subsequently recommended by Super (1951). This 1951 reconceptualization moved

> the focus of research and practice in assessment from a primary emphasis on what is to be chosen (the content of choice, the specific job or occupation at issue) to the chooser (the readiness, the independence, the skills of the person doing the choosing). (Herr, 1988, p. 17)

Career counselors today consider myriad issues in their research and practice, including the nature of selected careers, and even the possible presence of client misconceptions about work or personal capacity. In Super's (1951) view, counselors play an important role in helping clients to make choices that lead to satisfaction both for self and for society.

One important aspect of contemporary career counseling involves the potential for career counselors to help redress the serious and avoidable underrepresentation of minorities within the health professions. Counselors can help minority clients overcome misconceptions that they lack the personal capacity for careers in the health professions, and can assist minority clients in making choices that redress academic, social, economic and other barriers that may exist.

Various recent reports have addressed the need to increase the number of minority individuals in the health professions (Health

Resources and Services Administration, 1984; Mingle, 1987), a need which is especially pressing, because members of minority populations in the United States have comparatively poorer health status and use fewer health-care resources relative to their needs (U.S. Department of Health and Human Services, 1985).

Data on ethnic minority representation in the health professions reflect striking disparities between percentages of African-American and Hispanic persons in almost all health professions with respect to representation in the general population (Committee on Allied Health Education and Accreditation, 1991; Health Resources and Services Administration, 1990). For example, while the 1990 U.S. census indicated that the national population was 11.8% African-American and 9.0% Hispanic, African-American (6.6%) and Hispanic (2.7%) citizens together accounted for only 9.3% of U.S. medical school matriculants in 1991 (Association of American Medical Colleges, 1992). Furthermore, in 1985-1986, enrollment in the nation's registered nursing programs was 10.3% African-American and 2.7% Hispanic, while in 1988-1989, first year enrollment in dentistry was 6.9% African-American and 7.6% Hispanic (Health Resources and Services Administration, 1990).

And similar, if not even more severe disparities exist in the allied health professions (Institute of Medicine, 1989). Even the high-demand professions of physical therapy and occupational therapy included only 2.1% and 3.3% African-American and 0.9% and 1.1% Hispanic citizens, respectively. In fact, only in laboratory technician (11.1% of overall practicing professionals) and

respiratory therapy (10.0%) did African-American representation approach the percentage of African-Americans in the population. Finally, Hispanic representation in allied health fields remains far below the percentage of Hispanics in the general population. At 4.9%, Hispanic representation has been highest in respiratory therapy.

This profile is disturbing, because people are less likely to seek health care that they need when their ethnic groups are underrepresented among health care providers. With respect to health care for Hispanics, for example, Garcia and Ramon (1988) argued that:

> The underrepresentation of Hispanics in the health-care professions carries with it both a human and political toll. The intent of parity is founded in the notion of equality. However, a motivating force in the drive to reach parity is the concept of service--more Hispanic health-care professionals will improve health-care services received by the Mexican-American community of Texas. (p. 242)

Because these views generalize to other ethnic minority groups and to other geographic areas, the Institute of Medicine's (1989) Committee to Study the Role of Allied Health Personnel recommended that:

> The recruitment of minority students is a particular concern for several reasons: minorities represent a relatively untapped source of human power; their

representation in the population as a whole is increasing; and minority professionals are more likely to serve underserved populations.

There have been a number of attempts to recruit and retain minorities in the health professions. The lessons from successful models suggest that interventions must occur early in a student's life and continue through the academic career. (p. 8)

A recent report from the Pew Health Commission (Shugars, O'Neil & Bader, 1991), Healthy America: Practitioners for 2005, supports this view, adding that

> minorities, previously underrepresented in the health professions, will become a large part of the pool of potential applicants to health professional schools. Health professions in general and health professional educators in particular will need to understand and relate to the special needs of this growing segment of society. (p. 7)

So, too, will career counselors.

The purpose of the present study was to explore the perceptions of minority, high-school, senior students as regards career choices involving the health professions. Understanding such perceptions may be useful to career counselors working with clients such as the participants in the present study.

The participants were all enrolled in one of two magnet, alternative high schools for health professions careers. One high

school is located in an urban area--Houston, Texas; the second high school for health professions is located in the "valley" of Texas, an area near the Texas-Mexico border, and which has a disproportionately higher Hispanic populace than either the urban school district or the population of the country as a whole. As magnet schools, both programs draw students from a broad geographic area, i.e., they do not limit enrollment only to persons living in the nearby neighborhood of the school building. Both schools also consciously strive to maintain ethnically diverse student censuses.

The features of these high schools for the health professions have been described elsewhere (e.g., Butler, Thomson, Morrissey, Miller & Smith, 1991; Miller, LaVois & Thomson, 1991; Thomson, Holcomb & Miller, 1987; and Thomson, Smith, Miller & Shargey, 1991). The most relevant aspect of the schools, as regards the present study, is that students initially voluntarily enter the schools because they wish to explore the nature of careers in the health professions and/or because they wish acquire the high school preparation requisite for such career choices.

Specifically, the present study was conducted to address four research questions. First, what, if any, gender differences were there as regards the career-related perceptions and choices of the students? Second, what, if any, ethnic-group differences were there as regards the career-related perceptions and choices of the students? Third, what factors, if any, predicted the health-career choices of the students as high school seniors? Fourth, what factors, if any, predicted the decisions of the students to change

career objectives while they were enrolled in these magnet schools?

Method

Subjects

All the seniors enrolled in the Houston High School for the Health Professions and the South Texas High School for the Health Professions participated in the study. However, relatively few nonminority students (12 in both schools) were represented in the study. Given the disproportionately small representation of these nonminority students, and the emphasis in the present study on dynamics involving the minority senior high school students, the decision was taken to exclude nonminority students from the analyses reported here. Table 1 presents profiles of the two samples.

INSERT TABLE 1 ABOUT HERE

Instrumentation

The instrument employed in the study was a derivative of the measure employed in a recent study of college freshman (Astin, Dey, Korn & Riggs, 1991). The instrument asked about (a) current career goals; (b) career choice changes, if any; (c) influences on career decisions; (d) educational goals; (e) career choice satisfaction; and (f) perceived obstacles to career objectives. A copy of the complete instrument is available from the senior author.

Results

The research questions in the present study involved differences across categorical groupings. The analytic method used

was multivariate, so as to avoid inflation of experimentwise error rate and to represent the full network of relationships among variables (Thompson, 1992). Discriminant function analysis (Huberty & Wisenbaker, 1992) was employed to address these research questions. Since all the discriminant function analyses in the present study involved a single grouping variable, the discriminant results are equivalent to one-way MANOVAs, but provide more descriptive information, useful in formulating interpretations, than does MANOVA.

Prior to conducting analyses addressing the study's four research question, a preliminary ancillary analysis was conducted to explore differences between the seniors enrolled in the two high schools. These analyses compared the two groups as regards 10 factors influencing their decisions to seek additional education, perceptions of concerns regarding financing future education, confidence about ability to achieve current career goals, and satisfaction with current career choices. The two groups did not differ to a statistically significant degree (λ=.94, χ^2=11.14, $\underline{df}$=13, $\underline{p}$=.60) as regards these 13 variables. All further analyses reported here were conducted by pooling participants across school sites.

The study's first research question involved exploring possible gender differences within the sample. The same 13 variables were employed to predict the group membership in this analysis. Again, these two groups did not differ to a statistically significant degree (λ=.92, χ^2=15.30, $\underline{df}$=13, $\underline{p}$=.29) as

regards these 13 variables.

The study's second research question involved exploring group differences across the three minority groups represented in the sample. The same 13 variables were employed in this analysis. Since there were three groups in this analysis, two (3 - 1) discriminant functions were computed (Huberty & Wisenbaker, 1992). However, only the first lambda value was statistically significant (λ=.79, χ^2=43.10, df=26, p=.02).

Table 2 presents the standardized function coefficients and the structure coefficients associated with Function I in this analysis. Standardized function coefficients are directly analogous to the beta weights in regression analysis. Structure coefficients are correlation coefficients between scores on the predictor variables and scores on the discriminant functions, calculated using the function coefficients as weights for the predictors. Both coefficients are important in interpreting regression results, and are also important in interpreting discriminant analysis results (Thompson & Borrello, 1985).

INSERT TABLE 2 ABOUT HERE

The Function I centroids (i.e., mean discriminant function scores) for the African-American, the Asian, and the Hispanic students were -0.48, +0.60, and +0.20, respectively. These results indicate that the African-American students were most different from the Asian students, as regards the first discriminant function.

The study's third research question involved predicting the career choices of the 195 seniors who were able to articulate a career goal. This variable involves dynamics of change in career objectives, since the students had some commitment to or at least interest in the health professions when they voluntarily matriculated to these specialized high schools. For the purposes of this analysis the career goals were divided into three categories: (a) medicine (n_1=79); (b) health, but not medicine (n_2=72); or (c) business or some other non-health career (n_3=44).

The first lambda value was statistically significant (λ=.76, χ^2=50.00, df=26, $p<.01$), and so was the second lambda value (λ=.88, χ^2=23.82, df=12, $p=.02$). Table 3 presents the standardized function coefficients and the structure coefficients associated with both discriminant functions in this analysis.

INSERT TABLE 3 ABOUT HERE

The Function I centroids (i.e., mean discriminant function scores) for the medicine, the non-medicine health, and the non-health choices on Function I were +0.46, -0.27, and -0.38, respectively. These results indicate that the students with medicine as an objective differed most from both the other groups, although somewhat more with respect to the non-health group.

The Function II centroids for the medicine, the non-medicine health, and the non-health choices on Function I were -0.05, +0.40, and -0.57, respectively. The fact that this was the second function indicates that group differences associated with this

function were smaller in magnitude than those associated with Function I. The Function II centroids indicate that this function is most useful in explaining differences between the non-medicine health group as against the non-health group, ignoring the students with medicine as a career objective.

The study's fourth research question focused on what factors predicted students' decisions to change career goals. Seventy-eight of the students reported that they had changed career goals during the last year, a time when as seniors many students become particularly serious in reflecting on their career choices. Table 4 presents a breakdown of the reasons students reported for changing goals. The instrument allowed students the opportunity to select more than one reason. Ten students cited none of the seven alternatives listed on the instrument as a reason for changing their goals. Forty-two students cited one reason; 11 cited two reasons; 11 cited three reasons, and 4 cited four or more reasons.

INSERT TABLE 4 ABOUT HERE

The same 13 variables used in previous analyses where then employed to predict membership in the group of 124 students who had not changed career objectives, as against the group of 78 students who had. The two groups did not differ to a statistically significant degree (λ=.90, χ^2=20.70, $\underline{df}$=13, $\underline{p}$=.08).

However, a univariate test of one of the 13 predictor variables was statistically significant ($\underline{F}$=5.27, $\underline{df}$=1/200, $\underline{p}$=.02); this was the univariate test involving felt level of satisfaction

since identifying the current career goal. Although this result is noteworthy, it must be remembered that this test was not "protected" by having first found a statistically significant multivariate result, and therefore the result must be interpreted with particular caution.

Discussion

The failure to isolate noteworthy differences involving the school sites suggests that the two schools function somewhat similarly as regards recruitment of students and the impacts of curricula. This result is not too surprising, since both schools invoke a similar model (cf. Butler et al., 1991).

The failure to find gender differences is encouraging, insofar as the result suggests that equity goals have been realized to at least some degree. Students at these schools make different kinds of career-related choices, but gender does not appear to explain these differences. However, it is important to remember that the students have self-selected into these schools. Some young women, for example, may not aspire to careers in medicine because they have unrealistically low evaluations of personal capacity. Such students would not have thought to apply to one of these schools for the health professions, unless encouraged by a significant other, such as a counselor.

Group differences involving ethnicity, however, were somewhat explained by the predictor variables, as reported in Table 2. The coefficients reported in Table 2 indicate that African-Americans, relative to Hispanics and especially to Asians, were *most* motivated

by financial rewards (Function Coefficient = -.83; r_s = -.58), were *least* motivated by a desire to "become a more cultured person" (FC = +.53; r_s = +.25), felt *least* confidence about being able to meet their career goals (FC = +.42; r_s = +.37), and were *most* likely to tie educational objectives more directly to an instrumental effort to obtain career objectives (FC = -.14; r_s = -.28).

The African-American students' feelings of less confidence about being able to obtain career objectives may be realistic, especially as regards health careers. There is some evidence (Miller, Thomson, Smith, Thompson & Camacho, 1992) that African-American and Hispanic students do not always receive the optimal academic preparation for health careers. Counselors can go a long way toward rectifying deficiencies in the ways that some academic plans have been formulated in the past.

The largest differences involved interest in material rewards; 53% of African-Americans selected being able "to make more money" among the reasons most important in deciding to pursue further education, while 33% of the Hispanics and 24% of the Asians cited this as being an important consideration. This difference does not appear to have resulted from disparate financial situations across the ethnic groups. For example, somewhat similar percentages of African-Americans (33%) and of Asians (24%) indicated that financial obstacles posed the most problems as regards seeking further education. And roughly the same percentages of the African-American students (35%) and the Asian students (39%) were from families in which both parents had obtained a college degree.

However, the African-American students may have been from families in which access to financial achievement was a first-generation experience, and consequently, financial achievement may have been seen as both doable and important.

Noteworthy differences were identified also with respect to the career goals selected by the seniors, as reported in Table 3. As reported previously, the centroids (i.e., mean discriminant function scores) on the first discriminant function indicated that this function was most useful for discriminating students selecting career goals in medicine from students selecting other goals. Students selecting medicine as a career goal were *most* confident about their ability to achieve their career objectives (FC = +.63; r_s = +.41), were *least* motivated to seek further education "to get a better job" (FC = -.60; r_s = -.45), were *most* motivated to seek further education to prepare for graduate school (FC = +.49; rS = +.27), were *least* motivated to seek further education "to get away from home" (FC = -.44; rS = -.44), and were *least* motivated to seek further education so that they could "make more money" (FC = -.26; rS = -.32).

Function II was most useful in distinguishing persons choosing health careers other than medicine from students choosing non-health career goals, as indicated by the group centroids on this function. Students selecting non-medicine health career goals were *most* concerned about seeking further education for the purpose of improving reading and study skills (FC = +.51; r_s = +.41), were *least* motivated to seek further education "to become a more

cultured person" (FC = -.53; r_s = -.35), and were *most* concerned about financial obstacles as regards further education (FC = +.56; r_s = +.31).

This profile suggests a continuum with one group of students who are interested in health careers, but have serious reservations about their academic and financial resources; these students decline to abandon the health career interests that presumably first motivated them to enter these schools, but perceive that they have limited options. The students at the other end of this continuum, on the other hand, move toward career objectives in other fields.

Finally, differences involving prediction of changing career goals did not involve a statistically significant multivariate effect. However, the statistically significant, though "unprotected", univariate effect for "what level of satisfaction have you felt since identifying your current career goal" suggests that job satisfaction concerns are important in students' deliberations about career choice. This view is supported by the finding, reported in Table 4, that 44 of 78 students who actually did change career goals during their senior year cited job satisfaction as one of the reasons for the change.

Students come to these schools because of their interest in health careers. A substantial number (78 / 202 = 39%) change their career goals while they are enrolled. As indicated by the Table 4 results, some students change objectives because of perceived economic benefits (n=19), academic demands (n=17), or other

influences. But the schools' curricula and professionals apparently do afford students the opportunity to learn about health careers, and to make more informed choices about whether such careers will satisfy their needs and interests.

Of course, like all studies the present study is limited. No one study, taken singly, establishes the basis for generalizable insight. As Neale and Liebert (1986, p. 290) observe:

> No one study, however shrewdly designed and carefully executed, can provide convincing support for a causal hypothesis or theoretical statement... Too many possible (if not plausible) confounds, limitations on generality, and alternative interpretations can be offered for any one observation. Moreover, each of the basic methods of research (experimental, correlational, and case study) and techniques of comparison (within- or between-subjects) has intrinsic limitations. How, then, does social science theory advance through research? The answer is, by collecting a diverse body of evidence about any major theoretical proposition.

The present study is but one snapshot of dynamics involving the perceptions of minority high school students as regards health-related career choices. But developing multiple snapshots will enable us better to understand the dynamics involved in these choices. And the finding that the majority of these minority

students retain an interest in health careers (39% of them in medicine itself) suggests that such programs can be effective in helping to improve the representation of minorities within the health professions.

Career counseling in high school programs focusing on health careers does assist students in gaining a clearer understanding of the career pathways available to them. Sensitive career counseling can advance this important agenda for students and their families. The health care needs of the nation will continue to grow at a rapid pace. Career counselors are well-positioned to help students, particularly minority students, overcome artificial barriers to health career choices that also allow them to make meaningful contributions to the well-being of others.

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Table 1

Characteristics of the Sample

Characteristic	Urban TX		South TX		Total	
Gender						
Female	97	(70.8%)	41	(63.1%)	138	(68.3%)
Male	40	(29.2%)	24	(36.9%)	64	(31.7%)
Total	137		65		202	
Ethnicity						
African-American	79	(57.7%)	0	(0.0%)	79	(39.1%)
Asian	25	(18.2%)	0	(0.0%)	25	(12.4%)
Hispanic	33	(24.1%)	65	(100.0%)	98	(48.5%)
Total	137		65		202	
Career Goal						
Allied Health	16	(11.7%)	9	(13.8%)	25	(12.4%)
Business	13	(9.5%)	2	(3.1%)	15	(7.4%)
Dentistry	7	(5.1%)	2	(3.1%)	9	(4.5%)
Medicine	64	(46.7%)	15	(23.1%)	79	(39.1%)
Nursing	14	(10.2%)	21	(32.3%)	35	(17.1%)
Vet Medicine	2	(1.5%)	1	(1.5%)	3	(1.5%)
Other, not health	18	(13.1%)	11	(16.9%)	29	(14.4%)
Undecided	3	(2.2%)	4	(6.2%)	7	(3.5%)
Total	137		65		202	

Table 2

Discriminant Coefficients When Predicting Ethnicity

Predictor Variable	Function Coefficient	r_s
To be able to make more money among reasons most important in deciding to further education	-.83	-.58
Feel will be able to achieve present career goal	.42	.37
To achieve my career objectives among reasons most important in deciding to further education	-.14	-.28
To become a more cultured person among reasons most important in deciding to further education	.53	.25
To get away from home among reasons most important in deciding to further education	-.22	-.25
To get a better job among reasons most important in deciding to further education	-.10	-.23
Parents' wishes among reasons most important in deciding to further education	.28	.21
Level of concern about financing further education	.03	.14
To prepare for graduate school among reasons most important in deciding to further education	-.10	-.14
Level of satisfaction felt since identifying current career goal	.02	.10
To learn more about things among reasons most important in deciding to further education	.28	.08
To improve reading and study skills among reasons most important in deciding to further education	-.11	-.08
To gain general education among reasons most important in deciding to further education	.04	-.05

Table 3

Discriminant Coefficients for Two Discriminant Functions When Predicting Career Goals

Predictor Variable	Function Coefficient	r_s	Function Coefficient	r_s
To get a better job among reasons most important in deciding to further education	-.60	-.45	.40	.22
To get away from home among reasons most important in deciding to further education	-.44	-.44	.16	.02
Feel will be able to achieve present career goal	.63	.41	-.14	.03
To be able to make more money among reasons most important in deciding to further education	-.26	-.32	-.45	-.20
To prepare for graduate school among reasons most important in deciding to further education	.49	.27	-.34	-.20
To improve reading and study skills among reasons most important in deciding to further education	.16	.14	.51	.41
To become a more cultured person among reasons most important in deciding to further education	-.11	-.12	-.53	-.35
Level of concern about financing further education	-.05	.09	.56	.31
To gain general education among reasons most important in deciding to further education	.27	.14	.12	.27
To learn more about things among reasons most important in deciding to further education	.09	.09	.43	.22
To achieve my career objectives among reasons most important in deciding to further education	.08	.02	.20	.16
Level of satisfaction felt since identifying current career goal	-.11	.06	.07	.14
Parents' wishes among reasons most important in deciding to further education	.07	-.07	-.15	-.12

Table 4

Reasons Cited for Changing Career Goals (n=78)

Reason	n
Job Satisfaction	44
Economic Gain	19
Academic Demands	17
Family Influence	15
Job Prestige	10
Job Stereotype	9
Personal Problems	4